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Fuels for Schools Goes to College

The University of Montana receives Forest Service grant to help develop woody biomass heating system for Missoula campus

The recent award to the University of Montana of a \$250,000 Forest Service grant to support woody biomass utilization has taken the Fuels for Schools program into the Montana University setting for a second time. University of Montana-Western installed a woody biomass heating system on the Dillon campus in 2007.

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The Bitter Root Resource Conservation and Development Area (RC&D) and Darby public school system led the way in 2003 as the first to implement a Fuels for Schools project in Montana.

Building on the Darby example and supported by Federal funds, technical assistance, and grants from Montana Department of Natural Resources and Conservation (DNRC), nine other communities across western Montana implemented Fuels for Schools projects for their elementary, junior high, or high schools between 2003 and 2009.

In the University of Montana's commitment to climate neutrality, their 2010 Climate Action Plan included goals to reduce greenhouse gas emissions by 10% on the Missoula campus by the year 2015 and to be carbon neutral by 2020.

After an extensive effort to identify major sources of carbon dioxide pollution generated on the Missoula campus, one of the largest reductions the University determined it could make in carbon use was heating, specifically, the substitution of a renewable energy fuel for the natural gas used at the Missoula campus central steam plant.

Following considerable analysis and discussion, it became apparent that a heating plant that used woody biomass for fuel was the most effective way to convert from natural gas to a renewable energy fuel.

To further explore the proposal in the fall of 2010, the University received \$180,000 in a Fuels for Schools grant from the Montana DNRC. That grant funded a preliminary design and





Design for proposed biomass boiler system at University of Montana Missoula campus central steam plant

The University contracted with McKinstry—a Seattle-based performance contracting and energy services firm—to investigate the feasibility of installing a biomass boiler at the Missoula campus central steam plant. The firm serves as essentially the general contractor for the biomass boiler project, which has a total cost (guaranteed maximum price) of \$16 million. As part of the contract, McKinstry identified a British Columbia firm, Nexterra, as the manufacturer of a biomass gasification system most suited for the situation that met the University's objectives.

In July 2011, the University of Montana project was awarded a \$250,000 woody biomass utilization grant from the Forest Service for

detailed facility design, environmental analysis, permitting, and contracting for the project.

The plant the University proposes to construct will use 70% less natural gas than the current heating plant. It will burn roughly 15,700 tons of biomass a year, which is about 2% of the biomass used for heat and power at the Smurfit-Stone fiberboard plant in the Missoula area, before its permanent closure in 2010. During the 9-month school year the University plant will require about two truckloads of biomass per day. Throughout most of the summer months the plant will be shut down. Woody biomass for fuel for the plant will be obtained from within 100 miles of Missoula and potential sources include the University's Lubrecht Experimental Forest.

Projects such as the University of Montana's boiler project are extremely important to help maintain the ability to manage public and private Montana forests in a cost-effective manner. Other states in the western US that have lost their wood products industry infrastructure are paying two to four times the per acre cost to treat forest health problems like insect and disease outbreaks and the build up of hazardous fuels.

Julie Kies, of Montana DNRC's biomass program, says the development of the biomass boiler at the University of Montana could be a significant example of the potential for woody biomass use for other facilities to learn from, both within and outside of Montana.